CLAIMS

We claim:

1. An immersive imaging system, comprising:

a first lens having a first field of view;

a second lens having a second field of view; and

an optical image processor for relaying the first and second fields of view in alternating time sequence to a camera interface.

2. The system as set forth in claim 1, the first and second lenses cooperating with the image processor to image a combined field of view at the camera interface, the combined field of view being larger than either of the first or second fields of view.

3. The system as set forth in claim 2, the combined field of view covering at least about 2π steradians.

4. The system as set forth in claim 1, the first lens comprising a first plurality of lens elements.

5. The system as set forth in claim 4, the second lens comprising a second plurality of lens elements.

6. The system as set forth in claim 5, the first plurality of lens elements and the second plurality of lens elements sharing at least one lens element in common.

7. The system as set forth in claim 1, further comprising one of a digital focal plane and optical film to record one or both of the first and second fields of view through the camera interface.

8. The system as set forth in claim 7, further comprising a digital camera with the digital focal plane.

9. The system as set forth in claim 8, the digital camera coupling with the camera interface to cooperatively record images of the first and second fields of view.

10. The system as set forth in claim 7, further comprising a photographic camera with the optical film.

11. The system as set forth in claim 10, the photographic camera coupling with the interface to cooperatively record images of the first and second fields of view.

12. The system as set forth in claim 1, wherein one or both of the first and second lenses comprises a fisheye lens each having a substantially hemispheric field of view.

13. The system as set forth in claim 12, wherein the hemispheric field of view comprises about 185 degrees.

14. The system as set forth in claim 1, the optical image processor comprising a switch configured to alternatively relay the first and second fields of view to the interface.

15. The system as set forth in claim 14, wherein the switch comprises a time dependant switch constructed and arranged to alternatively relay the first and second fields of view at intervals of at least about a refresh rate for a digital camera.

16. The system as set forth in claim 1, the optical image processor comprising a switch configured to alternatively relay images from the first and second lenses to the camera interface at intervals equal to or less than 0.5 seconds.

17. The system as set forth in claim 1, the optical image processor comprising a switch having a two-sided mirror configured to alternatively relay images from respective first and second lenses to the camera interface.

18. The system as set forth in claim 17, the mirror being spring-loaded.

19. The system as set forth in claim 1, the optical image processor having a switch response time not greater than 0.5 seconds.

20. The system as set forth in claim 1, the optical image processor comprising a switch having an electro-optical liquid crystal.

21. The system as set forth in claim 1, wherein the optical image processor comprises a switch having at least one variable retarder.

22. The system as set forth in claim 20, wherein the optical image processor comprises a switch having at least one analyzer.

23. The system as set forth in claim 1, wherein the optical image processor comprises a switch having a continuously variable linear polarizer.

24. The system as set forth in claim 1, wherein the camera comprises a still camera connected to the camera interface and cooperating with the optical image processor for capturing the respective fields of view from the lenses as a combined still image encompassing a combined field of view covering 2π steradians.

25. The system as set forth in claim 1, further comprising a motion picture camera connected to the camera interface and timed in cooperation with the optical image processor for capturing the respective fields of view from the lenses alternatively as alternative images on adjacent frames.

26. The system as set forth in claim 1, further comprising a motion picture camera connected to the camera interface and timed in cooperation with the optical image processor for capturing the respective fields of view from the lenses as a combined image encompassing the combined field of view covering 2π steradians on single frames.

27. The system as set forth in claim 26, further comprising a motion picture camera connected to the camera interface, the first and second lenses comprising a pair of fisheye lenses each having a hemispheric field of view.

28. The system as set forth in claim 27, wherein the hemispheric fields of view comprise about 185 degrees.

29. The system as set forth in claim 26, wherein the optical image processor comprises a switch configured to alternatively relay images from the respective lenses of the lens array to the camera interface.

30. The system as set forth in claim 26, wherein the optical image processor comprises a switch having a spring loaded two-sided mirror configured to alternatively relay images from the respective lenses of the lens array to the camera interface.

31. The system as set forth in claim 26, wherein the optical image processor comprises a switch having an electro-optical liquid crystal.

32. The system as set forth in claim 26, wherein the optical image processor comprises a switch having at least one variable retarder and analyzer.

33. The system as set forth in claim 26, wherein the optical image processor comprises a switch having a continuously variable linear polarizer.

34. The system as set forth in claim 26, wherein the optical image processor comprises a rotating partial reflector disc synchronized to a frame rate of the motion picture camera.

35. In an imaging device having a first lens and a second lens, the improvement comprising:

a camera for use in recording images from the first lens and the second lens; and

an optical switching mechanism for use in providing the camera with time-sequenced alternating images from the first lens and the second lens.

36. A method of capturing optical images in a system having a first lens and a second lens in a selectively configurable optical pathway placing the first lens and the second lens in optical communication with a camera, the method comprising the steps of:

capturing an image from the first lens while the optical pathway is placed in a configuration that blocks transmissivity between the second lens and the camera while permitting transmissivity between the first lens and the camera;

switching to reconfigure the optical pathway into a configuration that permits transmissivity between the second lens and the camera while blocking transmissivity between the first lens and the camera; and

capturing an image from the second lens.

37. The method according to claim 36, wherein the respective steps of capturing an image form the first lens and capturing an image from the second lens include respectively capturing the images on different frames.